

Docket 99-111CIP1
Application Serial No. 09/854,128

REMARKS

Claims 1-4, 6-24 and 34-37 are pending in the above-referenced patent application. The Applicants respectfully request consideration of these claims on the merits, in view of the following remarks.

Amendments to the Specification

The specification has been amended to correct minor typographical errors as well to update a patent application serial number to the issued number and the definition of the term "heteroalkyl." This correction is obvious to one of skill in the art in light of the well-known use of this term.

Amended Claims

Claims 1-4, 6, 8 and 10-24 have each been amended. No new matter has been added.

New Claims

New claims 34-37 have been added to claim certain preferred embodiments of the invention. No new matter has been added.

Objection

The Specification was objected to because of informalities involving typographical errors. Applicants correct those errors herewith, thus obviating the objection.

The claims were objected to for multiple dependencies and the use of the term "therethrough." The claims have been amended, thus obviating the objections.

Claim Rejections

Claims 1-24 have been rejected under 35 U.S.C. § 112 as allegedly failing to meet the written description requirement, allegedly failing to meet the enablement requirement and allegedly indefinite.

Claims 1-10, 12 and 14-24 have been rejected under 35 U.S.C. § 102(b) as allegedly anticipated by PCT application WO 96/28538 to Wohlstader et al. (hereafter "Wohlstader").

Docket 99-111CIP1
Application Serial No. 09/854,128

Claims 1, 2, 5-10, 12, 15, 16 and 18 have been rejected under 35 U.S.C. § 102(b) as allegedly anticipated by PCT application WO 98/28623 to Sheppard et al. (hereafter "Sheppard").

Claims 1-24 have been rejected pursuant to 35 U.S.C. § 103(a) as allegedly obvious in view of Wohlstader and US Patent 6,419,881 to Weinberg et al. (hereafter "Weinberg").

Claims 1-24 have been provisionally rejected pursuant to the judicially created doctrine of obviousness-type double patenting as allegedly unpatentable over claims 1-31 of U.S. Patent Application 20020197454 A1.

Applicants traverse these rejections.

Rejection Under 35 U.S.C. § 112

Indefiniteness

Claims 1-24 stand rejected as allegedly being indefinite.

Claim 1 has been amended to correct the antecedent basis issue to "the materials" in the last line of the claim.

Claims 1, 3, 17 and 22 have been amended to provide proper antecedent basis for the phrase "the region(s)" or "said region(s)." In claim 18, the term "the regions" has been deleted from the claim.

Claims 1-6, 10, 12, 16, 17 and 19 are rejected due to the use of the terms "wetttable," "non-wetttable," "silanizable" and "unsilanizable." The claims have been amended to remove these terms.

The preamble of claim 16 has been amended to recite a method for forming an array of polymeric materials to be characterized on a substrate.

The phrase "the dispensing step" has been removed from claim 18.

Applicants traverse the rejection of the description of R in claim 6. The phrase is not indefinite. The phrase clearly presents a Markush group in which any of the components can be used for each R. The entire phrase clearly means that each R can be any member of the Markush group, which includes combinations of the preceding members listed in that group. Any other interpretation would make the claim limitation redundant. Applicants submit the phrase is not indefinite and request the rejection be withdrawn.

Docket 99-111CIP1
Application Serial No. 09/854,128

In view of the claim amendments and the remarks above, Applicants respectfully request that the rejections be withdrawn.

Written Description

Claims 1-24 stand rejected as not meeting the written description requirements of section 112.

The Office action erroneously concluded that because Applicants did not describe every type of "substrate," "polymeric material" or "characterization technique,"¹ that they were not in possession of the claimed method. This is not the standard. The written description requirement is satisfied where the specification conveys with reasonable clarity to one of skill in the art that Applicants were in possession of the claimed invention as of the filing date. *See Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-1564 (Fed. Cir. 1991).

Applicants respectfully submit that claims 24-27 and 29-40 are supported by the entirety of the specification as originally filed. Specifically, the Applicants assert that they were in possession of the invention, as presently claimed, at the time the application was filed.

The specification undeniably establishes that the Applicants considered their invention to include generic groups of substrates, polymers, and characterization methods that could be used in the methods of forming and characterizing arrays of polymeric materials. *See*, generally for example, page 5, paragraph 17,

Substrate: A material having a rigid or semi-rigid surface. In many embodiments, at least one surface of the substrate will be substantially flat, although in some embodiments it may be desirable to physically separate regions for different materials with, for example, dimples, wells, raised regions, etched trenches, or the like. In some embodiments, the substrate itself contains wells, raised regions, etched trenches, *etc.*, which form all or part of the regions.

See also, generally, page 21, paragraph 69,

Essentially, any conceivable substrate can be employed in the invention. The substrate can be organic, inorganic, biological, nonbiological, or a combination of any of these, existing as particles, strands, precipitates, gels, sheets, tubing, spheres, containers, capillaries, pads, slices, films, plates, slides, *etc.* The

¹ The Office action also rejected the claims based upon the use of the terms "wetable materials" and "non-wetable materials." Applicants have amended the claims to remove these terms, thus the rejection of these terms is moot.

Docket 99-111CIP1
Application Serial No. 09/854,128

substrate can have any convenient shape, such a disc, square, sphere, circle, *etc.* The substrate is preferably flat, but may take on a variety of alternative surface configurations. For example, the substrate may contain raised or depressed regions. The substrate may be any of a wide variety of materials including, for example, polymers, plastics, Pyrex, quartz, resins, silicon, silica or silica-based materials, aluminum, carbon, metals, inorganic glasses, inorganic crystals, membranes, *etc.* Other substrate materials will be readily apparent to those of skill in the art upon review of this disclosure. Surfaces on the substrate can be composed of the same materials as the substrate or, alternatively, they can be different, *i.e.*, the substrates can be coated with a different material.

The specification goes on to describe more specific substrates both by physical and chemical properties that may be used in the invention.

Regarding polymers, *See generally*, page 15, paragraph 55 – page 18, paragraph 59 for an extensive description and non-inclusive list of the variety of polymers that can be used within the scope of the claims of the invention.

Regarding characterization techniques, *See generally*, page 22, paragraph 74 :

Preferred embodiments for the high-throughput characterization of polymer materials confined within such a substrate include the spectroscopic techniques Reflectance Infrared Spectroscopy, Transmission Infrared Spectroscopy, Infrared Emission Spectroscopy, UV-Visible Spectroscopy, Raman Spectroscopy, X-ray Fluorescence Spectroscopy, X-Ray Scattering, and X-ray Diffraction. In another embodiment, this invention can be practiced with the Apparatus for Rapid Screening of Array Based Materials Characterization as described in U.S. serial Number 09/458,398 filed December 10, 1999, which is incorporated by reference herein.

The Office Action relies on *University of California v. Eli Lilly and Co.*, ("*Eli Lilly*") in making this rejection. Applicants respectfully submit that this reliance is misplaced. This case is simply not controlling in connection with the facts of the instant patent application. In the *Eli Lilly* case, the claims were composition of matter claims directed to a genus of new biological compounds (*i.e.*, recombinant plasmids, or recombinant micoroganisms) defined primarily by biological functionality (*i.e.*, the capability of mRNA or cDNA to encode insulin). The specification at issue in the *Eli Lilly* case disclosed the protein, which the cDNA compound was to encode, as well as a method for obtaining the mRNA or cDNA compounds. The specification did not, however, disclose the mRNA or cDNA compounds *per se*. A lack of written descriptive

Docket 99-111CIP1
Application Serial No. 09/854,128

support was found since the specification did not include a description of a structure or other identifying indicia that would distinguish members of that genus, or allow the genus to be visualized or recognized by a person of skill in the art.

In the present application, unlike *Eli Lilly*, the claims are methods claims directed to novel methods for preparation and characterization of arrays of materials. Although the claimed methodologies involve the use of substrates, polymeric materials and characterization techniques, the claimed subject matter is not the genus of substrates or polymeric materials, as compositions of matter.

These differences are significant under the law, because method claims may require the *preparation or use* of certain known classes of materials by reference to the *genus* that defines such class – without having to recite multitudes of representative *species* within that genus. For example, in a case involving composition of matter claims directed to a novel catalyst and method claims directed to a particular reaction, such as catalytic dehydrogenation of alkanes using such a novel catalyst composition, the rationale of *Eli Lilly* may apply with respect to the novel catalyst, but it does not apply to the required *alkanes* that are reactants in the method.

Moreover, the Federal Circuit has repeatedly and soundly rejected broad, indiscriminate application of *Eli Lilly* as a basis for holding that methods claims lack written descriptive support. In *Amgen Inc. v. Hoechst Marion Roussel Inc.*, 65 USPQ2d 1385 (Fed. Cir. 2003), for example, the defendant challenged the validity of method claims directed toward a process for producing a particular recombinant polypeptide using vertebrate cells or in mammalian cells as host cells. The basis of the defendant's challenge was that the patent owner (Amgen) had failed to sufficiently describe the use of all vertebrate and mammalian cells. The court rejected this challenge. Specifically, the court reasoned that

Both *Eli Lilly* and *Enzo Biochem* (63 USPQ2d 1613, Fed. Cir. 2002) are inapposite to this case because the claim terms at issue here are not new or unknown biological materials that ordinarily skilled artisans would easily miscomprehend. Instead, the claims of Amgen's patents refer to types of cells that can be used to produce recombinant human EPO. ... This difference alone sufficiently distinguishes *Eli Lilly*, because when used, as here, merely to identify types of cells (instead of undescribed previously unknown DNA sequences), the words "vertebrate" and "mammalian" readily "convey distinguishing information concerning their identity" such that one of ordinary skill in the art could "visualize or recognize the identity of the members of the genus."

Docket 99-111CIP1
Application Serial No. 09/854,128

Amgen Inc. v. Hoechst Marion Roussel Inc., 65 USPQ2d 1385 (Fed. Cir. 2003) (emphasis added; internal citations omitted). Thus, the court in *Amgen* held that the process claims were not invalid for failing to sufficiently describe all vertebrate and mammalian cells that that can be employed in the claimed method.

More recently in *Moba B.V. v. Diamond Automation, Inc.*, the Federal Circuit rearticulated the well-established standards for determining whether the written description requirement of 35 U.S.C. §112 is satisfied, to wit:

(one) should determine whether a person of skill in the art would glean from the written description... (information) sufficient to demonstrate possession of the generic scope of the claims. ...

(T)he applicant must convey, with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention. ...

The written description requirement does not require the applicant 'to describe exactly the subject matter claimed, instead the description must clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed.

(emphasis added, internal citations omitted).

The facts of the instant application are clearly in line with those of the *Amgen* and the *Moba* decisions of the Federal Circuit. Like the *Amgen* case, Applicants claims are method claims that involve the preparation and use of substrates. Here, as in *Amgen*, the claim terms at issue are not new or unknown materials that ordinarily skilled artisans would easily miscomprehend. Instead, as in *Amgen*, the presently-pending claims refer to types of materials that can be used in connection with a process to form and characterize arrays of polymeric materials. Here, as in *Amgen*, the terms are being used merely to identify types of materials for use in the claimed process – not to identify *undescribed, previously unknown* compounds. In short, the terms readily convey distinguishing information concerning their identity such that one of ordinary skill in the art could visualize or recognize the identity of the members of the genus. The law requires nothing further.

One of skill in the art reading the specification and claims would recognize that Applicants have invented a method of forming arrays of polymeric materials in which many substrates, polymeric materials and/or characterization techniques could be used. In view of the

Docket 99-111CIP1
Application Serial No. 09/854,128

examples and significant description of varieties of components that may be used in the methods, as well as language describing the invention in broad, generic terms, Applicants have demonstrated that they are in possession of the invention as claimed, e.g., that the method encompasses numerous different substrates that can be used. One of skill in the art reading the specification would indeed recognize that Applicants were in possession of the invention as claimed when filed.

Significantly, the scope of the presently-pending claims are entirely consistent with the scope of the invention as disclosed in the specification. In such a situation, with respect to written description concerns,

(t)he Examiner has the initial burden of presenting evidence or reasons why persons skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims.

See In re Wertheim, 191 USPQ90, 96 (CCPA 1976) and MPEP § 2163.04 (emphasis added). In the present case, however, the Office action sets forth only conclusory allegations with respect to the support provided in the specification. This is clearly not the standard. The Office action does not present evidence or delineate sound reasons as to why the specification is considered to lack support. As such, the Applicants respectfully assert that the Office action does not establish, *prima facie*, that the specification lacks support under 35 USC 112.

Applicants respectfully request that the rejection be withdrawn.

Enablement

Claims 1-24 stand rejected under 35 U.S.C. § 112, first paragraph as allegedly as lacking enablement. Specifically, the Office action maintains that the specification would not have enabled a skilled artisan to make and use the invention commensurate with the scope of the claims, because the specification fails to provide enablement for every substrate, polymer, and characterization technique². Applicants respectfully traverse the rejection.

Rejected independent claims 1 and 16 as amended are directed to methods to create and characterize an array of polymeric materials. The method includes depositing a first material (such as a material from group 6, 7, 8, 9, 10, and 11 metals from the Periodic Table of the

² The Office action also rejected the claims based upon the use of the terms "wetable material" and "non-wetable material." These terms have been removed from the claims by amendment so will not be discussed.

Docket 99-111CIP1
Application Serial No. 09/854,128

Elements and combinations thereof) onto a substrate in at least 10 regions. The substrate is then exposed to a second material (such as an organosilane), thereby modifying a surface tension of the substrate but not a surface tension of the first material in the regions. At least 10 polymeric materials are then deposited onto the regions and characterized. Certain claims recite more detailed descriptions of the organosilane, material in the regions that does not contain the organosilane, substrate characteristics, and polymer material types.

Significantly, a person of ordinary skill in the art would have recognized that Applicants' invention represents new formats, approaches and protocols for investigating (e.g., discovering and/or optimizing) polymeric materials through the use of arrays – generally, and without regard to particular chemistries – and as such, that the invention can readily be applied with existing, *known* chemistries, without undue experimentation.

Applicants submit that a skilled artisan would have been fully enabled to make arrays of polymers for characterization as claimed with no more than routine experimentation, particularly in view of the substantial guidance set forth in the specification, taken together with knowledge in the art at the time the application was filed.

The specification provides substantial guidance for making arrays of polymers according to claims 1 and 16 and claims dependent therefrom. In particular, an overview of general and specific approaches is provided, together with specific details regarding various substrates, materials for the regions, materials for outside of the regions, polymers and characterization techniques that are within the scope of the invention. Components, such as substrate forms and materials, polymer materials, and characterization techniques are disclosed in significant detail as discussed above.

Contrary to the position set forth in the Office action, the specification enables a skilled artisan to fully practice the inventions as presently claimed. The Office action asserts that the specification fails to provide adequate guidance to polymerization of arrays. *See* Page 9, last full paragraph of Office action. However, such assertion appears to misconstrue the nature and purpose of present invention. The invention is not directed to creating particular *polymer compositions* having particular properties. Rather, the present invention is directed to new methods for preparing and characterizing arrays of polymeric materials in order to optimize and/or discover polymeric materials. There is no claim limitation requiring making polymers. The claims simply recite depositing polymers on the array. As such, a skilled artisan would be

Docket 99-111CIP1
Application Serial No. 09/854,128

able to practice the invention by selecting materials and/or components starting, for example, from known scientific principles regarding the polymers to be characterized or from specific characterizations to be performed.

Additionally, with regard to the approach, the Office action appears to discount the vast warehouse of knowledge existing in the art upon which a skilled artisan could base appropriate initial selections for components and reaction techniques for making arrays of polymers. With respect to the state of the prior art, the Office action appears to consider only the art related to analyte detection and making polyolefin materials, with specific reference to catalytic olefin polymerization. The Office action does not appear to consider the teaching of numerous references directed to the synthesis and use of arrays of materials for characterization. Likewise, the Office action does not appear to consider the teaching of numerous references directed to the preparation and screening of arrays of materials that could have been applied, in view of the teaching of the specification, to make arrays of polymers. See Specification at page 2, paragraphs 5-8. The teaching of such references, considered in combination with the instant specification, could have been readily applied by a skilled artisan to make arrays of polymers as required in the presently-pending claims. The law is clear that a patent specification need not teach, and preferably omits what is generally known in the art. See *Hybritech v. Monoclonal Antibodies*, 231 USPQ 81, 94 (Fed. Cir. 1986). As such, Applicants are entitled to rely on such knowledge in the art in combination with the further teaching of the instant specification.

The Office action states that one skilled in the art wishing to use the claimed invention, commensurate in scope with the claims, would be required to experiment to determine what specific combination of substrates, polymers, materials and characterization techniques would produce a desired array of polymeric materials. However, even if some experimentation were required to adapt such methods for use in connection with the present invention, the Office action does not establish, *prima facie*, that the level of experimentation required would have been undue to practice the invention as claimed.

The fact that experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. *In re Certain Limited-Charge Cell Culture Microcarriers*, 221 USPQ 1165, 1174 (Int'l Trade Comm'n 1983) and MPEP 2164.01.

Applicants have disclosed numerous substrates, polymers, materials, and characterization techniques that would produce a desired array of polymeric materials that can be used in the

Docket 99-111CIP1
Application Serial No. 09/854,128

present invention. In the art of arrays of polymers for characterization, whether to prepare a polymer, or to prepare a substrate, the experimentation to find optimum (and also working) combinations and reaction conditions for a specific combination of polymers and substrates is typical. The typical need to conduct a variety of experiments in this art has been the focus of new combinatorial research inventions in the field, as exemplified by the present claims directed towards arrays. Additionally, the present invention is directed to assisting researchers in the discovery and/or optimization of polymeric materials through experimentation. Also, as discussed above, one skilled in the art has guidance through the literature to design polymers and substrates through reaction design as well as component combination design.

As such, a person of ordinary skill in the art would have been enabled to make arrays of polymers for characterization in the manner defined by Applicants' invention.

Applicants respectfully request that the rejection be withdrawn.

Rejections Under Section 102

Claims 1-10, 12 and 14-24 have been rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Wohlstader.

Claims 1, 2, 5-10, 12, 15, 16 and 18 have been rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Sheppard.

Applicants traverse these rejections.

Wohlstader

Wohlstader is directed to materials and methods for creating patterned multi-array, multi-specific surfaces (PMAMS) for electrochemilluminescence tests. The arrays include a plurality of binding domains located on a support an affinity-binding based system for detecting cells suspended in biological fluids. The system utilizes an inorganic platform, onto which polymers, such as proteins or carbohydrates are deposited. The binding domains are prepared by micro stamping an organic self assembled monolayer (SAM) patterned on the support surface. Binding reagents, which are able to selectively bind the analyte of interest, are then applied to the areas on the support where the SAM has been stamped. See page 14, lines 25-35. Examples of specific SAMs that can be used to create the binding domains include alkane thiols (which bind to gold and other metals) and alkyltrichlorosilanes (which bind to silicone and silicone dioxide). See

Docket 99-111CIP1
Application Serial No. 09/854,128

page 24, lines 16-21. Wohlstader also discloses that the binding domains may be hydrophobic or hydrophilic, and that the surrounding surfaces may have the opposite properties. *See* page 8, lines 17-19. Specifically, Wohlstader discloses polydimethylsiloxane as a mask to use to deposit material in the regions. *See* examples 6.1 and 6.2 at pages 102-103.

In contrast, independent claims 1 requires depositing a first material selected from the group consisting of a group 6, 7, 8, 9, 10, and 11 metals from the Periodic Table of the Elements and combinations thereof onto a substrate in at least 10 regions, and thereafter placing the substrate in a solution comprising a second material, thereby modifying a surface tension of the substrate but not a surface tension of the first material in said at least 10 regions and depositing at least 10 polymeric materials onto said at least 10 regions. Wohlstader fails to disclose these features. The only mention of a material being coated on the substrate that falls within the Markush group of claim 1, is as a film covering the substrate. *See*, for example, Wohlstader, page 14, lines 20-22, in which the underlying support is a gold film surface with transparent binding domains. The binding domains are the areas that the polymeric materials are deposited. *See also* Figures 11-13, showing a continuous film of gold on the substrate.

Independent claim 16 requires depositing a first material onto the substrate through the template, the first material selected from the group consisting of groups 6, 7, 8, 9, 10 and 11 metals of the Periodic Table of the Elements, ink, photoresist material, adhesives, adhesive tapes, pressure sensitive adhesive tapes, other adhesively adhered material and combinations thereof, removing the template, and thereafter contacting the substrate with an organosilane agent, whereby the resulting surface tension of the substrate and the surface tension of the first material are different from each other. Wohlstader does not disclose these method steps. Wohlstader fails to disclose both depositing the first materials in the same manner as the claims, and contacting the substrate with an organosilane agent which results in a surface tension differential between the substrate and the materials deposited on the substrate. The only mention of alkyltrichlorosilanes in Wohlstader is as a SAM for binding to a silicone substrate material for creating a binding domain, which is the region in which the polymer is deposited, not as a material to border the regions. There is no teaching or disclosure of an organosilane material coated on the substrate and surrounding the regions on which the polymer is deposited. Wohlstader teaches that the surfaces surrounding the domains may be hydrophobic materials, but never discloses or teaches organosilanes as those materials.

Docket 99-111CIP1
Application Serial No. 09/854,128

For at least these reasons, Wohlstader does not anticipate independent claims 1 and 16 or any of the claims dependent thereupon. Applicants request that the rejection be withdrawn.

Sheppard

Sheppard is directed to an affinity-binding based system for detecting cells suspended in biological fluids. The system utilizes an inorganic platform, onto which biological polymers, such as proteins or carbohydrates are deposited. See page 24, lines 3-8. Sheppard discloses depositing the biological polymers (described as "binding reagents") in optically transparent portions of the platform in combination with deposition in alternative regions with a treated reflective material, such as gold, in order to prevent binding of cells in those regions. See page 24, lines 20-30. Sheppard also discloses treating the cell adsorption areas with a surface-modifying agent, such as a silanization agent, after deposition of the binding reagent, in order to alter the surface tension of the regions containing the binding reagents in order to increase cell adsorption properties of those regions. See page 25, line 26 – page 26, line 11.

In contrast, independent claims 1 and 16 as amended, require polymers deposited on the regions coated with a material such as gold. Additionally, claim 16 requires that the substrate is contacted with an organosilane to change the surface tension of the substrate, but not the surface tension of the materials deposited in the regions in which the polymers are to be deposited. Sheppard fails to disclose an array of polymers where the regions of the substrate where the polymers are deposited on the regions coated with the materials as claimed. For at least these reasons, Sheppard does not anticipate independent claims 1 and 16 or any of the claims dependent thereupon. Applicants request that the rejection be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

The Office action rejects claims 1-24 under 35 U.S.C. § 103(a) based on the combination of Wohlstader and Weinberg.

Applicants respectfully traverse these rejections.

Independent claims 1 and 16 contain elements that are not taught by either reference, alone or in combination.

Docket 99-111CIP1
Application Serial No. 09/854,128

Independent claim 1 requires depositing a first material selected from the group consisting of a group 6, 7, 8, 9, 10, and 11 metals from the Periodic Table of the Elements and combinations thereof onto a substrate in at least 10 regions, thereafter placing the substrate in a solution comprising a second material, thereby modifying a surface tension of the substrate but not a surface tension of the first material in said at least 10 regions, depositing at least 10 polymeric materials onto said at least 10 regions, and characterizing the at least 10 polymeric materials. As discussed above, Wohlstader discloses depositing gold as a continuous film underlying the binding domains, but does not disclose depositing the claimed materials onto the substrate in at least 10 regions. Wohlstader discloses depositing SAMS in regions, but those materials are different.

Independent claim 16 requires preparing a substrate, the preparation comprising overlaying a template comprising ten or more holes onto the substrate, depositing a first material onto the substrate through the ten or more holes of the template, the first material selected from the group consisting of groups 6, 7, 8, 9, 10 and 11 metals of the Periodic Table of the Elements, ink, photoresist material, adhesives, adhesive tapes, pressure sensitive adhesive tapes, other adhesively adhered material and combinations thereof, removing the template, and thereafter contacting the substrate with an organosilane agent, whereby the resulting surface tension of the substrate and the surface tension of the first material are different from each other. Neither reference teaches this combination of elements. Neither reference teaches contacting the substrate with an organosilane agent, whereby the resulting surface tension of the substrate and the surface tension of the first material are different from each other. Nor does either reference teach depositing a first material onto the substrate through a template, the first material selected from the group consisting of groups 6, 7, 8, 9, 10 and 11 metals of the Periodic Table of the Elements, ink, photoresist material, adhesives, adhesive tapes, pressure sensitive adhesive tapes, other adhesively adhered material and combinations thereof.

For at least these reasons, Applicants submit that independent claims 1, 16 and claims dependent thereon, are patentable over the art of record. Applicants respectfully request the rejection be withdrawn.

Docket 99-111CIP1
Application Serial No. 09/854,128

Provisional Obviousness-Type Double Patenting Rejections

Claims 1-24 have been provisionally rejected under the judicially created doctrine of obviousness-type double patenting as allegedly being unpatentable over claims 1-31 of copending Application No. 20020197454 A1. This provisional rejection on double-patenting grounds is moot with respect to claim 5 which has been cancelled by the present Amendment. With respect to claims 1-4 and 6-24, Applicants will consider submitting a terminal disclaimer to obviate the provisional rejection, if necessary.

Equivalents

The amendments to the claims and the arguments presented in response to the Office action have been made to claim subject matter which the Applicants regard as their invention. By such amendments, the Applicants in no way intend to surrender any range of equivalents beyond that which is needed to patentably distinguish the claimed invention as a whole over the prior art. Applicants expressly reserve patent coverage to all such equivalents that may fall in the range between applicants literal claim recitations and those combinations that would have been obvious in view of the prior art. In particular, as noted above, many of the claims have not been narrowed within the meaning of *Festo Corp. v. Shoketsu Kinzoku Kogyo Kabushiki Co.*, 62 USPQ2d 1705 (2002), and Applicants are therefore entitled to the full range of equivalents with respect to each of the presently-pending claims.

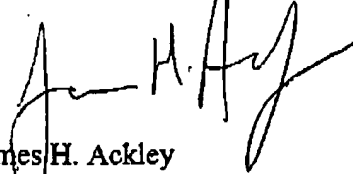
CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

The Examiner is hereby authorized to charge the fees required in connection with this Amendment B to Deposit Account No. 50-0496, in accordance with the Transmittal submitted herewith. The Examiner is also authorized to debit any other fees required in connection with this application, or to credit any overpayment of fees in connection with this application to Deposit Account No. 50-0496.

Docket 99-111CIP1
Application Serial No. 09/854,128

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4-6-04

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